

# AstraZeneca and Isis Pharmaceuticals to Discover and Develop Antisense Drugs for Cardiovascular, Metabolic and Renal Diseases

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CARLSBAD, Calif., Aug. 3, 2015 /PRNewswire/ -- Isis Pharmaceuticals, Inc. (NASDAQ: ISIS) and AstraZeneca today announced a strategic collaboration to discover and develop antisense therapies for cardiovascular, metabolic and renal diseases. The new collaboration builds on a broad existing relationship between the two companies and supports AstraZeneca's strategic approach in these therapeutic areas using novel RNA-targeted treatments. It also enables Isis Pharmaceuticals to extend use of its antisense technology to diseases of the kidney.



Antisense drugs are short, chemically modified, single-stranded nucleic acids (antisense oligonucleotides) that have the ability to target any gene product of interest. They offer new opportunities for therapeutic intervention because they act inside the cell to influence protein production by targeting RNA to either prevent the production of disease-causing proteins, increase the production of proteins deficient in disease, or target toxic RNAs that are unable to generate proteins.

AstraZeneca will pay an upfront fee of \$65 million to Isis Pharmaceuticals plus development and regulatory milestones for each program that AstraZeneca advances to clinical development. Isis Pharmaceuticals is also eligible to earn tiered double-digit royalties on annual net sales for each program.

Mene Pangalos, Executive Vice President, Innovative Medicines & Early Development at AstraZeneca, said: "Antisense-based therapies are rapidly gaining momentum in the clinic and becoming an important component of our early stage pipeline. This collaboration combines the world-class antisense drug research capabilities of Isis with our expertise in cardiovascular, metabolic and renal disease drug discovery and development. By working together, we aim to uncover targets and pathways that can be manipulated using antisense drug therapy."

B. Lynne Parshall, Chief Operating Officer at Isis Pharmaceuticals, said: "This expansion of our collaboration with AstraZeneca establishes our second strategic relationship. This new collaboration will help broaden the application of our antisense technology to targets in the kidney. AstraZeneca is committed to finding novel best-in-class therapies for some of the largest, most complex and fastest growing disease segments in the developed world. Combining our antisense technology with AstraZeneca's strong knowledge, leadership and commitment in these areas should be very valuable in fully exploiting these opportunities and moving new therapies effectively and efficiently toward the market."

This transaction is subject to clearances under the Hart-Scott Rodino Antitrust Improvements Act.

## About AstraZeneca

AstraZeneca is a global, innovation-driven biopharmaceutical business that focuses on the discovery, development and commercialisation of prescription medicines, primarily for the treatment of cardiovascular, metabolic, respiratory, inflammation, autoimmune, oncology, infection and neuroscience diseases. AstraZeneca operates in over 100 countries and its innovative medicines are used by millions of patients worldwide. For more information please visit: [www.astrazeneca.com](http://www.astrazeneca.com).

## ABOUT ISIS PHARMACEUTICALS, INC.

Isis is exploiting its leadership position in RNA-targeted technology to discover and develop novel drugs for its product pipeline and for its partners. Isis' broad pipeline consists of 38 drugs to treat a wide variety of diseases with an emphasis on cardiovascular, metabolic, severe and rare diseases, including neurological disorders, and cancer. Isis' partner, Genzyme, is commercializing Isis' lead product, KYNAMRO®, in the United States and other countries for the treatment of patients with homozygous FH. Isis has numerous drugs in Phase 3 development in severe/rare diseases and cardiovascular diseases. These include volanesorsen, a drug Isis is developing and plans to commercialize through its wholly owned subsidiary, Akcea Therapeutics, to treat patients with familial chylomicronemia syndrome and familial partial lipodystrophy; ISIS-TTR<sub>Rx</sub>, a drug Isis is developing with GSK to treat patients with the polyneuropathy and cardiomyopathy forms of TTR amyloidosis; and ISIS-SMN<sub>Rx</sub>, a drug Isis is developing with Biogen to treat infants and children with spinal muscular atrophy, a severe and rare neuromuscular disease. Isis' patents provide strong and extensive protection for its drugs and technology. Additional information about Isis is available at [www.isispharm.com](http://www.isispharm.com).

## Isis Pharmaceuticals' Forward-looking Statement

This press release includes forward-looking statements regarding Isis' alliance with AstraZeneca, Isis' research, development and commercial opportunities in developing antisense drugs to treat cardiovascular, metabolic and renal diseases. Any statement describing Isis' goals, expectations, financial or other projections, intentions or beliefs is a forward-looking statement and should be considered an at-risk statement. Such statements are subject to certain risks and uncertainties, particularly those inherent in the process of discovering, developing and commercializing drugs that are safe and effective for use as human therapeutics, and in the endeavor of building a business around such drugs. Isis' forward-looking statements also involve assumptions that, if they never materialize or prove correct, could cause its results to differ materially from those expressed or implied by such forward-looking statements. Although Isis' forward-looking statements reflect the good faith judgment of its management, these statements are based only on facts and factors currently known by Isis. As a result, you are cautioned not to rely on these forward-looking statements. These and other risks concerning Isis' programs are described in additional detail in Isis' annual report on Form 10-K for the year ended December 31, 2014, and its most recent quarterly report on Form 10-Q, which are on file with the SEC. Copies of these and other documents are available from the Company.

Isis Pharmaceuticals® is a registered trademark of Isis Pharmaceuticals, Inc. Akcea Therapeutics™ is a trademark of Isis Pharmaceuticals, Inc. KYNAMRO® is a registered trademark of Genzyme Corporation.

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SOURCE Isis Pharmaceuticals, Inc.

D. Wade Walke, Ph.D., Vice President, Corporate Communications and Investor Relations, 760-603-2741; Amy Blackley, Ph.D., Associate Director, Corporate Communications, 760-603-2772